

and all the changes undergone by the stamens and style were clearly shown. The stamens are of very unequal lengths, the three superior ones (1, 2, 1, Fig.) being the shortest and united by their filaments. The two inferior (4, 4, Fig.) are longest and the remaining ones (3, 3, Fig.) intermediate in length. Two of the missing stamens are represented by sterile filaments but there is no trace of the inferior one (? Fig.). While the anthers are bursting the five stigmatic surfaces are closely pressed together. So perfect is the protandry that the anthers shrivel and drop off and the filaments wither and curl up before the stigmas are exposed. In rare instances one or two shriveled anthers persist until the style begins to open.— C. R. B.



Diagram of flower of *Petargonium graveolens*. Stamens numbered in the order of their length 4 being longest.

## EDITORIAL NOTES.

PROF. C. E. BESSEY, with his family, is spending the winter in the east. Another botanical text-book will doubtless be the product of his freedom from class-work.

ILLINOIS INDUSTRIAL UNIVERSITY has quite a well organized Natural History Society. The programme for 1883, just received, shows one meeting, that of April 7, devoted to a botanical topic, viz: "Notes on Mosses," by Mr. A. B. Seymour.

E. RAY LANKESTER upholds in a vigorous article in *Nature* the view formerly fully presented by him in a memoir in the *Quart. Jour. Microsc. Sci.* that the Chlorophyll corpuscles of *Hydra* are truly Chlorophyll corpuscles and not Unicellular Algae.

MR. A. H. CURTISS is now at work preparing his sixth fascicle of Florida plants, to be issued in February, which he expects to be more valuable than any of the preceding ones, and will contain very nearly all the South Florida plants which he has not previously distributed.

HENRY JOHN ELWES has published in London a most elaborate monograph of the genus *Lilium*, bearing the date of 1880. It is an Elephant folio and is one of those sumptuous volumes which are more apt to be published across the sea than here. Every species known to the author is figured, in natural size and colors, making 48 full-page plates.

WE WERE GUILTY of a little injustice in the December GAZETTE in speaking of Mr. Frank Bush's "Flora of Jackson Co., Mo.," when we wrote that the name of the state only appeared in the imprint. As

we said, it does not appear upon the title page, nor in the introduction, but we find that it is prominent enough at the top of every page of the text.

DR. BERGMAN concludes from his researches that formic and acetic acids are found in all parts of plants as constituents of the protoplasm and are to be regarded mainly as decomposition products, resulting continually from metastatic changes. An increase in the amount of these acids takes place whenever light is withdrawn unless the temperature is lowered at the same time to the minimum required for growth.

DR. FRED. BRENDEL of Peoria, Illinois, has just published a treatise upon the topography, climate and vegetation of Illinois, which also contains a Catalogue of the Flora around Peoria. This is an imperial octavo of 107 pages, but as it is in German, and printed at Buda-Pesth, and is a part of the fifth volume of the *Termesztudajzi Füzetek* (whatever that may be), American botanists will not be apt to get much good of it.

IN THIS NUMBER of the GAZETTE is begun a series of short biographical sketches of some North American botanists of the first half of the century. Many botanists, who have not access to large libraries, feel an interest in knowing more about those whose abbreviated names are of such familiar occurrence in our manuals and a wider knowledge of the history of botany and the personality of botanists will help us all.

MR. J. G. BAKER has prepared a paper on the flora of Madagascar, recently read before the Linnean Society. It contains descriptions of 140 new species of *Polypetalæ*. Some of the genera are widely diffused throughout the tropics; others are of temperate types; others are characteristic of the Cape flora; and a new genus is allied to the American *Hiraa*; and some characteristic Australian genera are present by their representatives.

A. ERNST writes to *Nature* from Caracas about an abnormal fruit of *Opuntia Ficus-Indica*, which had developed wholly inclosed in one of the flat branches. He also inclined to believe that what is taken to be the pericarp of the *Opuntia* fruit is nothing but a slightly modified branch, bearing the ovary of the flower in a cavity on its upper end. If this is true *Opuntia* can no longer be described as having an "exserted ovary," as the latter is sunk in the interior of a branch.

IT HAS BEEN recorded by Dr. Brandis, Director of the India Forest Department, that *Acacia dealbata* introduced into India from Australia in 1845 has gradually changed its time of flowering from October, the Australian spring, to June, the corresponding spring month in India. In 1850 the tree flowered in October, in 1860 in September, in 1870 in August, 1878 in July and in 1882 in June. Mr. Dyer notices this fact in *Nature* and adds the statement that *Acacia decurrens*, var. *mollis*, a close-

ly allied species and one observed by Sir Joseph Hooker to flower in Tasmania at the same time as *A. dealbata*, has during its cultivation in England since 1790 changed its time of flowering from May-July to February. The influence of their environment upon the blossoming of these trees seems quite marked.

M. LEPLAY of the Paris Academy of Sciences has read a paper upon a chemical study on maize. He states that sugar is found in the leaves, and accumulates in the stem till the moment of formation of starch in the grains. It then migrates into the spike, first into the support of the grains, then into the grains themselves, where it is replaced by starch. This migration continues to be fed by the leaves till they disappear, then in great part by the stem, diminishing, however, as the starch is developed. The function of the sugar, then, is to furnish to the grain the elements of starch.

MR. WM. M. CANBY has observed that the tips of the leaflets of *Akebia quinata*, a plant twining over a trellis near his porch, dripped moisture enough to make the floor look as if sprinkled. Mr. Meehan has followed up these observations and found no constancy nor periodicity in the exudation, nor, indeed any external circumstances which induce it. The same observer detected a similar exudation from the pistil just before the expansion of the flower and also among the petals in the bud which soon disappeared. In *Thuja* also there is a sudden appearance of a small globule at the open mouth of the naked ovule. Sachs suggests that in Coniferae the use of this exudation is to catch the pollen and as it sinks within the vesicle carries the pollen grains to the nucleus and fertilization is effected by actual contact.

WE ARE SURE that the friends of the GAZETTE will be gratified at the evidence of progress shown by this initial number of Vol. VIII. The new arrangement of matter into distinct departments, with some additional pages and a greater range in type, nearly doubles the capacity, and in our opinion we now present to our patrons as large and neatly printed a periodical as can be issued at the present low rate of subscription. The editor also takes pleasure in announcing in this formal way, what all have seen upon the title page, that with the new volume there will be associated with him Professor Charles R. Barnes, of Purdue University, and Prof. J. C. Arthur, of Charles City, Iowa. All who are acquainted with these gentlemen will testify to the fact that no better selection could have been made, and that their vigor of thought and action will constantly be felt in the pages of the GAZETTE.

DR. A. L. CHILD records in the *Popular Science Monthly* some observations upon the relation between the so-called "annual rings" of trees and the known age. His attention was called to the matter by the statement of M. Désiré Charnay that in a shrub which he knew to be on-

ly eighteen months old he counted eighteen rings of growth. In 1871 Dr. Child planted some seeds of *Acer rubrum*. In transplanting in 1873 the trees were set too close and had to be thinned. In each of four of these trees when they were cut down in 1882 he counted from 35 to 40 separate rings. In three of them twelve rings were plainer than the rest, while in the fourth, nine were large and the remainder not distinguishable from each other. All of these saplings were of known age. Certainly if 35 or 40 rings may be made in twelve years, the estimates of age based on the number of growth rings cannot be very accurate. The rings varied in thickness from  $2\frac{1}{2}$  to 28 mm.

DR. CHAS. MOHR has been looking up the rare *Rhus cotinoides*, Nutt., for the Tenth Census. It has been lost to the botanical world for forty years and was poorly understood. After considerable search the tree was found where Prof. Buekley had found it in 1841. Its habitat seems to be upon the southern declivities of mountains along the valley of the Tennessee in Alabama and probably extending northward into the State of Tennessee. Dr. Mohr reports it as yielding a yellow dye-stuff and formerly much used for that purpose in the neighboring settlements. On account of the great beauty of its wood the tree is called by the negroes Shittim-wood, they believing that it is the very wood so named in the Bible. "The wood permits of the finest finish; the fineness of its grain, beauty of color and its hardness fit it well for inlaid work, veneering, and the manufacture of smaller articles of all kinds of fancy woodwork." An interesting account of this re-discovery is given in Proc. Philad. Acad., p. 217, 1882.

## CURRENT LITERATURE.

*Descriptions of New Species of Fungi, collected in the vicinity of Cincinnati.* By THOMAS G. LEA, and described by REV. M. J. BERKELEY. Republished from "A Catalogue of the Plants of Cincinnati, by Thomas G. Lea."—This important pamphlet has just been published by the Cincinnati Society of Natural History. Thos. G. Lea's "Catalogue of Plants" was published in 1849, the collections having been made during the years 1834-44, but it has become so exceedingly rare as to be virtually inaccessible to students. This was to be regretted principally on account of its containing a list of Fungi with notes and descriptions of the new species by the eminent English mycologist, Rev. M. J. Berkeley. This loss has now been generously made good by the Society referred to, and this neat pamphlet of 21 pages is hailed with delight by more than the local mycologists. The richness of Mr. Lea's collections may be inferred from the fact that out of a list of 80 species 51 are new, and one of them was made the type of a new genus, *Psilopezia* by name. The Cincinnati Society of Natural History has quite an enterprising set of members, who are well cultivating many departments, not even neglecting, as is seen, this much neglected branch of Systematic Botany, and they promise to publish during this present year a synopsis of Hymenomyces of the Miami Valley, by Prof. A. P. Morgan.